

Title: [REDACTED] Stem Cell Training Program

Specific names of individuals and institutions are blacked out to preserve applicant confidentiality where possible.

Proposal Abstract as Submitted by Applicant

The [REDACTED] Type I Stem Cell Training Program establishes a collaborative training experience dedicated to meeting the goals of the California Institute of Regenerative Medicine (CIRM). The overarching objective is to provide CIRM Scholars with state-of-the-art multidisciplinary team training to position them to become technically skilled, critically thinking, and collaborative scientists with successful independent research careers in stem cell biology and medicine. The training program will enroll pre-doctoral and post-doctoral students and clinical fellows (16 trainees/year). A talented pool of applicants will be selected from established graduate and clinical training programs. A formal application process overseen by an Internal Executive Committee is described, including standardized selection criteria. Faculty committed to the stem cell training program will be drawn from the [REDACTED] medicine, veterinary medicine, engineering, biological sciences, agriculture and environmental sciences, law, and management programs (13 lead mentors; 46 total mentors identified). CIRM Scholars will participate in (1) structured mentored research experiences; (2) core curriculum including courses in basic research skills; ethical, legal, and social implications of stem cell research; stem cell biology and medicine; and leadership training; (3) elective didactic and laboratory rotations; (4) special experiences (journal club, stem cell seminar series, symposia, annual retreat); and (5) further opportunities such as special laboratory rotations, field trips, interaction with the technology transfer office, and scholar presentations to K-12 classes and the lay public. The program leaders, Internal Executive Committee, and External Advisory Board will oversee program administration; assure implementation of training program objectives; facilitate recruitment, selection, retention and training; and evaluate scholars and mentors. Unique attributes of our training program include the [REDACTED]; biomedical engineering/in vivo imaging; collaboration with [REDACTED], [REDACTED], and [REDACTED]; robust combination of campus schools; and a strong commitment to diversity and outreach, all of which add significant value to the [REDACTED] research and training experience for the proposed CIRM Scholars.

Benefit of this Program to California

This program will benefit the people and the state of California by providing high-quality training in the scientific, clinical, social, and ethical aspects of stem cell research to the scientists and clinicians who will develop and apply future therapies in this rapidly emerging field.

Summary of Review

This application proposes a multidisciplinary type I training program. The training program is clearly outlined with a core curriculum involving basic research skills, ethical training, stem cell biology, as well as didactic and standard laboratory courses. The

inclusion of leadership skills is novel and could be an important component to such a controversial area. Supplemental activities include outside lectures, journal clubs, and links to collaborative institutes. The program leadership is strong, in the tradition of this institution. The program director is a well-qualified leader, administrator, mentor, trainer, and researcher who has served as a department chair and a senior associate dean for academic affairs. The director will function as the administrative head while two scientific co-directors, an internal executive committee, and an external advisory board will together oversee 46 proposed mentors. Both scientific co-directors have strong clinical backgrounds with extensive experience in standard extramural funding and organizing laboratories. The caliber of the training faculty is outstanding, if somewhat inexperienced in stem cell work. The institution is awaiting the recruitment of additional faculty to enhance their overall strength in this area. A commitment to mentoring is evident by continuous evaluation of expertise and knowledge of the trainees, both scientifically and socio-politically. The overall quality of the proposed training and integration of its components is high, and extend to social implications of stem cell research and other supplementary activities. Several aspects of the program, however, were of concern. The administrative structure seems excessive, with unrealistic expectations for the progress of the students. In general, training in ancillary areas (ethics, leadership) seems more impressive than plans for scientific training where key faculty are yet to be recruited. Although the proposed training program has very strong potential, elements of it are not well developed. The reviewers suggest: 1) finalizing recruitment of faculty; 2) refocusing the curriculum to strengthen the basic science and translation areas; 3) improving trainee selection; and 4) reducing the expectation of productivity of its trainees.

Overall Strengths and Weaknesses

The proposed training program is well organized with a tight administrative structure. The program director is very well qualified, having experience in directing training-programs and experience in stem cell biology. There is concern that expectations of trainees might be too high and that the many support activities might distract them from the strong scientific training. Faculty mentors with expertise in stem cell biology are not all recruited yet. As the program appears to be in an early state of development, the reviewers recommended a reduction of trainee slots from 16 to 12.

Recommendations

Highly meritorious and recommended for funding with a reduction of trainee slots. Reviewers encourage the applicant to submit an application at a later date for a supplement to fund these positions when concerns have been addressed.

	Pre	Post	Clinical	Total
Fellows Requested:	6	6	4	16
Fellows Recommended:	4	4	4	12

T1-00006

	Year 1	Total
Budget Requested:	\$ 1,144,000	\$ 3,432,000
Budget Recommended:	\$ 894,300	\$ 2,682,900